

I Claim:

1. A prosthesis assembly to replace all or a portion of a caudal portion of a left natural facet joint and all or a portion of a caudal portion of a right natural facet joint on a vertebral body, the prosthesis assembly comprising

a left prosthesis body accommodating fixation to the vertebral body at or near a left pedicle and without support by a lamina,

an artificial left facet joint structure carried by the left prosthesis body adapted and configured to replace all or a portion of a caudal portion of the left natural facet joint,

a right prosthesis body accommodating fixation to the vertebral body at or near a right pedicle and without support by a lamina, and

an artificial right facet joint structure carried by the right prosthesis body adapted and configured to replace all or a portion of a caudal portion of the right natural facet joint.

2. A prosthesis assembly according to claim 1 wherein at least one of the artificial left and right facet joint structures is adapted and configured to replace a natural articular process of a caudal portion of the respective one of the left and right natural facet joints.

3. A prosthesis assembly according to claim 1 wherein at least one of the artificial left and right facet joint structures is adapted and configured to replace a natural articular process of a caudal portion of the respective one of the left and right natural facet joints after removal of at least some of a lamina from the vertebral body.

4. A prosthesis assembly according to claim 1 wherein at least one of the artificial left and

right facet joint structures is adapted and configured to replace a natural articular process of a caudal portion of the respective one of the left and right natural facet joints after removal of at least part of a mamillary process from the vertebral body.

5 5. A prosthesis assembly according to claim 1 wherein at least one of the artificial left and right facet joint structure is adapted and configured to replace a natural articular process of a caudal portion
10 of the respective one of the left and right natural facet joints after removal of at least part of a transverse process from the vertebral body.

 6. A prosthesis assembly according to claim 1 wherein at least one of the artificial left and
15 right facet joint structures is adapted and configured to replace a natural articular process of a caudal portion of the respective one of the left and right natural facet joints after removal of at least part of a pedicle from the vertebral body.

20 7. A prosthesis assembly according to claim 1 wherein at least one of the artificial left and right facet joint structures is adapted and configured to replace a natural articular process of a caudal portion of the respective one of the left and right natural facet
25 joints after removal of at least some of the natural articular process from the vertebral body.

 8. A prosthesis assembly according to claim 1 wherein at least one of the artificial left and right facet joint structures is adapted and configured to
30 replace a natural articular process of a caudal portion of the respective one of the left and right natural facet joints after removal of at least some of the natural articular process and of at least some of a lamina from the vertebral body.

35 9. A prosthesis assembly according to claim 1

wherein at least one of the artificial left and right facet joint structures is adapted and configured to replace a natural articular process of a caudal portion of the respective one of the left and right natural facet joints after removal of at least some of the natural articular process and of at least some of a mamillary process from the vertebral body.

10. A prosthesis assembly according to claim 1 wherein at least one of the artificial left and right facet joint structures is adapted and configured to replace a natural articular process of a caudal portion of the respective one of the left and right natural facet joints after removal of at least some of the natural articular process and of at least part of a transverse process from the vertebral body.

11. A prosthesis assembly according to claim 1 wherein at least one of the artificial left and right facet joint structures is adapted and configured to replace a natural articular process of a caudal portion of the respective one of the natural left and right facet joints after removal of at least some of the natural articular process and of at least part of a pedicle from the vertebral body.

12. A prosthesis assembly according to claim 1 wherein at least one of the artificial left and right facet joint structures is adapted and configured to replace a natural articular process of a caudal portion of the respective one of the left and right natural facet joints, and

wherein at least one of the prosthesis bodies is adapted and configured to replace at least some of a lamina of the vertebral body.

13. A prosthesis assembly according to claim 1 wherein at least one of the artificial left and right facet joint structures is adapted and configured to

replace a natural articular process of a caudal portion of the respective one of the left and right natural facet joints, and

5 wherein at least one of the prosthesis bodies is adapted and configured to replace at least some of a mamillary process of the vertebral body.

14. A prosthesis assembly according to claim 1 wherein at least one of the artificial left and right facet joint structures is adapted and configured to
10 replace a natural articular process of a caudal portion of the respective one of the left and right natural facet joints, and

wherein at least one of the prosthesis bodies is adapted and configured to replace at least some of a
15 pedicle of the vertebral body.

15. A prosthesis assembly according to claim 1 wherein at least one of the prosthesis bodies is adapted and configured to replace at least some of a lamina of the vertebral body.

20 16. A prosthesis assembly according to claim 1 wherein at least one of the prosthesis bodies is adapted and configured to replace at least some of a mamillary process of the vertebral body.

25 17. A prosthesis assembly according to claim 1 wherein at least one of the prosthesis bodies is adapted and configured to replace at least some of a pedicle of the vertebral body.

18. A prosthesis assembly according to claim 1 wherein at least one of the artificial left and
30 right facet joint structures is adapted and configured to articulate with a cephalad portion of the respective one of the left and right facet joints of an adjoining vertebral body.

35 19. A prosthesis assembly according to claim 1 wherein at least one of the artificial left and

right facet joint structures is made of at least one selected prosthetic material.

20. A prosthesis according to claim 1
wherein the selected prosthetic material
5 includes polyethylene, rubber, tantalum, titanium, chrome cobalt, surgical steel, bony in-growth material, ceramic, artificial bone, or a combination thereof.

21. A prosthesis assembly according to claim 1
wherein a connecting member joins the left and
10 right prosthesis bodies without support by a lamina.

22. A prosthesis assembly according to claim 1
wherein at least one of the left and right
prosthesis bodies includes a fastening element installed
within the vertebral body at or near a pedicle to fix the
15 respective prosthesis body to the vertebral body.

23. A prosthesis assembly according to claim 1
wherein at least one of the left and right
prosthesis bodies includes a fastening element installed
within the vertebral body at or near a pedicle to fix the
20 respective prosthesis body to the vertebral body, and
wherein the respective one of the artificial
left and right facet joint structures is carried by the
fastening element.

24. A prosthesis assembly according to claim
25 23
wherein the respective one of the artificial
facet joint structures is fixed to the fastening element.

25. A prosthesis assembly according to claim
23
30 wherein the respective one of the artificial
facet joint structures is fixed to the fastening element
by an adhesive or cement.

26. A prosthesis assembly according to claim
23
35 wherein the respective one of the artificial

facet joint structures is fixed to the fastening element by mechanical attachment.

27. A prosthesis assembly according to claim 23

5 wherein the respective one of the artificial facet joint structures is removably carried by the fastening element.

28. A prosthesis assembly according to claim 23

10 wherein the respective one of the artificial facet joint structures is removably attached to the fastening element by frictional engagement.

29. A prosthesis assembly according to claim 23

15 wherein the respective one of the artificial facet joint structures is removably attached to the fastening element by a Morse taper.

30. A prosthesis assembly according to claim 23

20 wherein the respective one of the artificial facet joint structures comprises an insert fitted to the fastening element.

31. A prosthesis assembly according to claim 23

25 wherein the respective one of the artificial facet joint structures comprises an insert fitted by frictional engagement to the fastening element.

32. A prosthesis assembly according to claim 23

30 wherein the respective one of the artificial facet joint structures comprises an insert fitted by a Morse taper to the fastening element.

33. A prosthesis assembly according to claim 23

35 wherein the respective one of the artificial

facet joint structures comprises a removable insert fitted to the fastening element.

34. A prosthesis assembly according to claim 23

5 wherein the respective one of the artificial facet joint structures pivots with respect to the fastening element.

35. A prosthesis assembly according to claim 22 or 23

10 wherein the fastening element is fixed to the vertebral body by an adhesive or cement.

36. A prosthesis assembly according to claim 22 or 23

15 wherein the fastening element includes a bony in-growth material.

37. A prosthesis assembly according to claim 22 or 23

wherein the fastening element includes a screw installed within the vertebral body at or near a pedicle.

20 38. A prosthesis assembly according to claim 22 or 23

wherein the fastening element includes a stem installed within the vertebral body at or near a pedicle.

25 39. A prosthesis assembly according to claim 22 or 23

wherein the fastening element including means for resisting rotation after installation in the vertebral body.

30 40. A prosthesis assembly according to claim 1 wherein at least one of the prosthesis bodies is fixed to the vertebral body by an adhesive or cement.

41. A prosthesis assembly according to claim 1 wherein at least one of the prosthesis bodies includes a bony in-growth material.

35 42. A method of replacing, on a vertebral

body, all or a portion of a caudal portion of left
natural facet joint and all or a portion of a caudal
portion of a right natural facet joint using the
prosthesis assembly defined in claim 1 to provide
5 improved support for the spinal column, the method
comprising the steps of

(i) removing all or a portion of the caudal
portions of the left and right natural facet joints from
the vertebral body, and

10 (ii) fixing the prosthesis assembly as defined
in claim 1 to the vertebral body to replace both removed
caudal portions of the left and right natural facet
joints with the artificial facet joint structure.

43. A method according to claim 42

15 further including a step of removing at least
some of the lamina from the vertebral body.

44. A method according to claim 42

further including a step of removing at least
part of a mamillary process from the vertebral body.

20 45. A method according to claim 42

further including a step of removing at least
part of a transverse process from the vertebral body.

46. A method according to claim 42

25 further including a step of removing at least
part of a pedicle from the vertebral body.